Owens Sucker (*Catostomus fumeiventris*)

Ecological Risk Screening Summary

U.S. Fish and Wildlife Service, January 2024
Revised, March 2024
Web Version, 8/14/2025

Organism Type: Fish
Overall Risk Assessment Category: Uncertain

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1 Native Range and Status in the United States

Native Range

From NatureServe (2024):

"Native range includes the Owens River watershed in eastern California, where the species is most abundant in Crowley Reservoir (Mono County; reservoir formed by dam on Owens River) and widely distributed in the Owens River, Bishop Creek, and other streams in the Owens Valley

(Moyle 2002). Range also includes Convict Lake (Mono County) and Lake Sabrina (Inyo County) (Moyle 2002)."

From Fuller (2024):

"Endemic to the Owens River, California (Page and Burr 1991)."

Status in the United States

From Fuller (2024):

"Endemic to the Owens River, California (Page and Burr 1991)."

"Established in parts of California outside its native range, including populations in June Lake and those in the Owens Valley sanctuary (Moyle 1976)."

From NatureServe (2024):

"In the 1930s a population became established in the Santa Clara River in Los Angeles County via the Owens Aqueduct; apparently present in lower Sespe Creek, outflow of Fillmore Trout Hatchery, and Piru Creek and Reservoir [Santa Clara River watershed] (Swift et al. 1993, Moyle 2002)."

No records of *Catostomus fumeiventris* in live trade in the United States were found.

Regulations

No species-specific regulations on possession or trade were found within the United States.

Means of Introductions within the United States

From Fuller (2024):

"Apparently introduced to June Lake and to the Santa Clara River system as a result of a release of Owens River water from the Los Angeles Aqueduct (Moyle 1976; Bell 1978). Introduced into the Owens River sanctuary as a conservation precautionary measure (Moyle 1976)."

Remarks

From NatureServe (2024):

"This species was first diagnosed as a population of *C. arenaris*, which was subsequently merged with *C. tahoensis*, its closest relative. It was described as a distinct species by Miller (1973)."

2 Biology and Ecology

Taxonomic Hierarchy and Taxonomic Standing

From ITIS (2024):

Kingdom Animalia
Subkingdom Bilateria
Infrakingdom Deuterostomia
Phylum Chordata
Subphylum Vertebrata
Infraphylum Gnathostomata
Superclass Actinopterygii
Class Teleostei
Superorder Ostariophysi
Order Cypriniformes
Superfamily Cobitoidea
Family Catostomidae
Subfamily Catostominae
Tribe Catostomini
Genus *Catostomus*
Species *Catostomus fumeiventris* Miller, 1973

According to Fricke et al. (2024), *Catostomus fumeiventris* Miller 1973 is the current valid name for this species.

Size, Weight, and Age Range

From Froese and Pauly (2024):

"Max length : 50.0 cm [total length] male/unsexed; [Page and Burr 1991]; common length : 30.9 cm [total length] male/unsexed; [Hugg 1996]"

Environment

From Froese and Pauly (2024):

"Freshwater; demersal."

From NatureServe (2024):

"Habitat includes silty to rocky pools and runs of creeks (Page and Burr 2011). In the lower Owens River and tributaries, this sucker is most abundant in sections with long runs and few riffles, over substrates of mostly fine material (some gravel and rubble) (Deinstadt et al. 1986). Adults occur in cool permanent streams with deep (1+ meters) pools and also do well in lakes and reservoirs, such as Convict Lake and Crowley Reservoir, where they seem to occur on the bottom at all depths (Moyle 2002). Larvae are abundant in weedy edges and backwaters of streams."

From CDFW (2015):

“Owens suckers, in the Owens River and two of its tributaries, Hot Creek and Rock Creek, are most common in stream reaches with long runs and few riffles (Deinstadt et al. 1986). Habitat in these reaches is characterized by fine substrate with lesser amounts of gravel and cobble, water temperatures of 7-13°C, and pH of 7.9-8.0.”

Climate

From Froese and Pauly (2024):

“Temperate; 37°N - 36°N”

Distribution Outside the United States

Native

The native range of *C. fumeiventris* is wholly within the United States. See section 1 for a complete description of the native range.

Introduced

No records were found for introduction of *C. fumeiventris* in the wild outside the United States.

Means of Introduction Outside the United States

No records were found for introduction of *C. fumeiventris* in the wild outside the United States.

Short Description

From CDFW (2015):

“Owens suckers are stout, with large heads, large mouths, long snouts and wide caudal peduncles. Their mouths are characterized by a deeply incised lower lip. Their scales are coarse and usually number less than 80 (66-85) along the lateral line. Rows of scales are 13-16 above and 9-11 below the lateral line. Ray fin counts are 16-19 for the pectoral, 10 for the dorsal, and 9-10 for the pelvic fins. Their coloration can be very dark but is normally slate on the dorsal surface and smoky on the belly, with blue iridescence on the sides. Spawning adults develop red coloration in a line along their sides and at the tips of the paired fins.”

From Miller (1973):

“A moderately coarse-scaled species […] with 10 dorsal rays, usually from 75 to 78 lateral-line scales […].”

“[…] mostly slate-colored and is often dusky across the abdomen, especially in nuptial males, with weak blue reflections on the sides. Occasionally an individual may be almost a uniform blackish slaty-blue. The paired fins show a wash of dull olive and the median fins (in some) have a faint wash of dull reddish amber. There is no trace of a red stripe on the sides of nuptial males.”

Biology
From NatureServe (2024):

"Diet and feeding are probably similar to those of *C. tahoensis*, which feeds on algae, detritus, and small benthic invertebrates (Moyle 2002)."

"Spawning occurs in gravelly riffles in tributary streams; lacustrine populations spawn in springs and gravel patches along lake shores, as well as in tributary streams (e.g., Crowley Reservoir) (Moyle 2002)."

"Spawning occurs from early May-early July (water temperatures usually 7-13 C) in tributary streams of Owens River and Crowley Lake (Moyle 2002)."

Human Uses
No information was found on human uses of *Catostomus fumeiventris*.

Diseases
No information was found associating *Catostomus fumeiventris* with any diseases listed by the World Organization for Animal Health (2024).

Murray (2019) reports *Catostomus fumeiventris* being infected by *Lernaea cyprinacea*.

Threat to Humans
From Froese and Pauly (2024):

"Harmless"

3 Impacts of Introductions
The following information concerns *C. fumeiventris* interactions with another potentially introduced species, *Pantosteus santaanae* (formerly *Catostomus santaanae*; Fricke et al. 2025), in the Santa Clara River, California.

From Richmond et al. (2018):

"[…] the non-native status of Santa Clara River populations [of *P. santaanae*] is […] equivocal."

"The repeated finding that hybrids [of *P. santaanae* and *C. fumeiventris*] and pure *C. fumeiventris* are restricted to the lower watershed suggests that the probability of non-native genetic variation ever diffusing into the upper watershed is low. […] The continued predominance of alleles belonging to *C. santaanae* [*P. santaanae*] and limited hybrid backcrossing (see also Buth & Crabtree, 1982; Buth et al., 2008) also suggests that natural selection and or postzygotic genetic incompatibilities may be further constraining the extent of hybridization and introgression."

4 History of Invasiveness

The History of Invasiveness for *Catostomus fumeiventris* is classified as Data Deficient. *Catostomus fumeiventris* is established outside of its native range. In the Santa Clara River, California, introduced *C. fumeiventris* hybridizes with a cryptogenic population of *Pantosteus santaanae*. The uncertainty around the native or nonnative status of the *P. santaanae* population and the limited information on potential population-level consequences of hybridization on *P. santaanae* does not constitute clear, convincing, reliable evidence of either negative impacts or lack of negative impacts.

5 Global Distribution

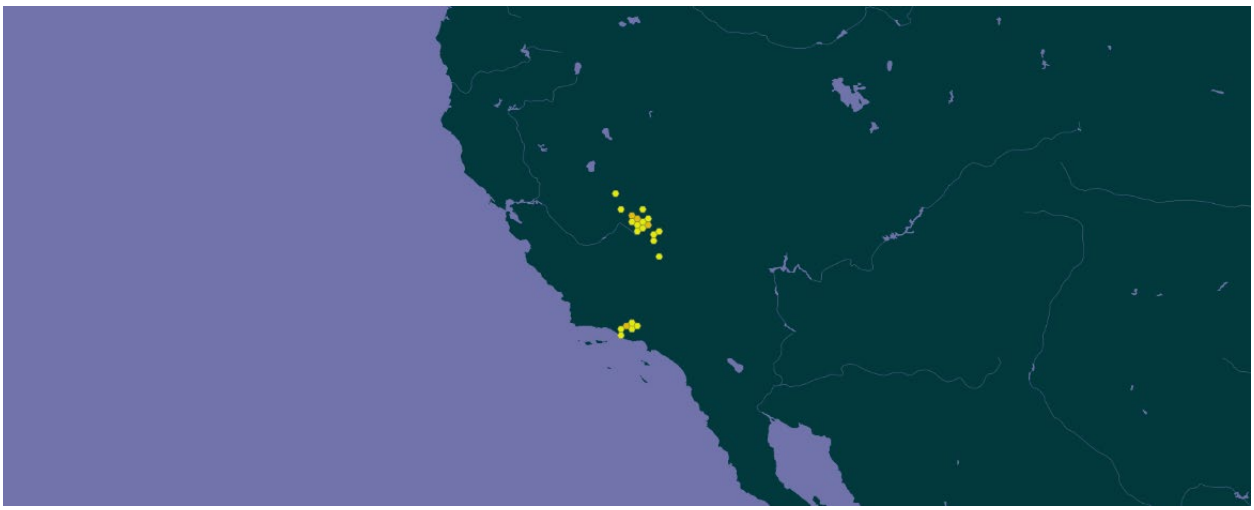

Figure 1. Reported global distribution of *Catostomus fumeiventris*. Map from GBIF Secretariat (2023). Observations are reported from the United States in California, in the Owens Valley and just north of Los Angeles.

6 Distribution Within the United States

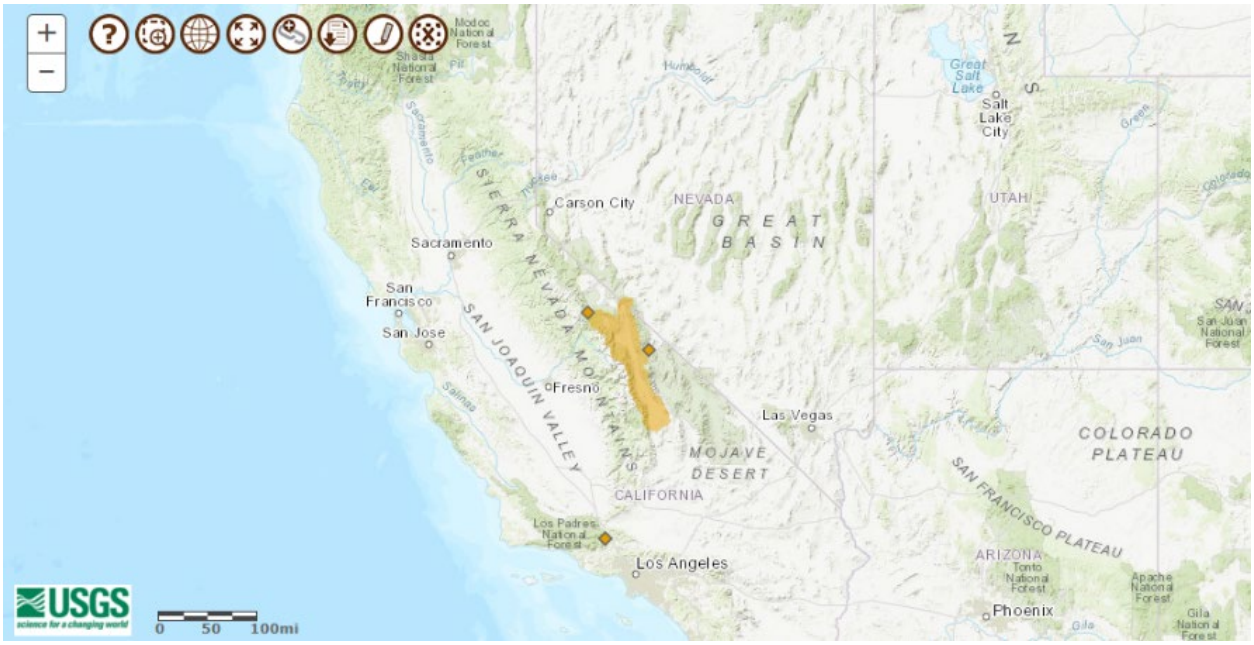

Figure 2. Reported distribution of *Catostomus fumeiventris* in the United States. Map from Fuller (2024). The native range of *Catostomus fumeiventris* is in the Owens River watershed, represented by the orange shading. Nonnative observations that represent established populations (orange diamonds), are reported adjacent to the native range as well as in the Santa Clara River basin in coastal Southern California.

7 Climate Matching

Summary of Climate Matching Analysis

The climate match for *Catostomus fumeiventris* to the contiguous United States was high within the species native range in California and throughout much of California and the Great Basin. The climate match was also high in parts of the Pacific Northwest, Colorado Plateau, and Southwest regions. Areas of medium match were found in the western Great Plains and parts of the Southwest. Additional, small areas of medium match were scattered throughout the western United States as well as in the Great Lakes region. Low matches extended from the eastern Great Plains and western Gulf Coast to the Atlantic Coast of the United States. Additional, small areas of low match were scattered through parts of the western United States, especially along the Northern Pacific Coast and the Cascade Mountain range. The overall Climate 6 score (Sanders et al. 2023; 16 climate variables; Euclidean distance) for the contiguous United States was 0.184, indicating that Yes, there is establishment concern for this species outside its native range. The Climate 6 score is calculated as: (count of target points with scores ≥ 6)/(count of all target points). Establishment concern is warranted for Climate 6 scores greater than or equal to 0.002 based on an analysis of the establishment success of 356 nonnative aquatic species introduced to the United States (USFWS 2024).

Projected climate matches in the contiguous United States under future climate scenarios are available for *Catostomus fumeiventris* (see Appendix). These projected climate matches are provided as additional context for the reader; future climate scenarios are not factored into the Overall Risk Assessment Category.

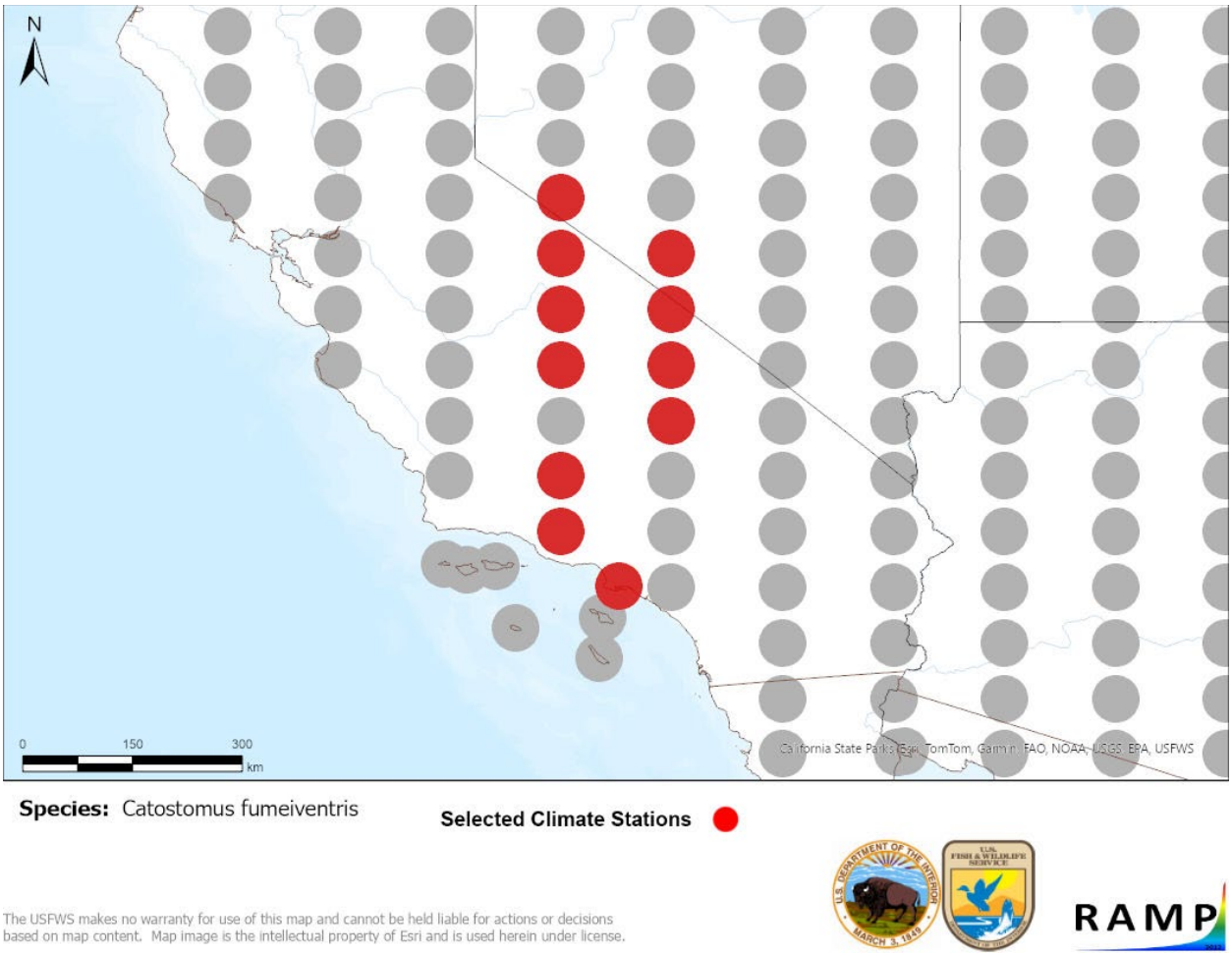

Figure 3. RAMP (Sanders et al. 2023) source map showing weather stations in the western United States selected as source locations (red; California, Nevada) and non-source locations (gray) for *Catostomus fumeiventris* climate matching. Source locations from GBIF Secretariat (2023). Selected source locations are within 100 km of one or more species occurrences, and do not necessarily represent the locations of occurrences themselves.

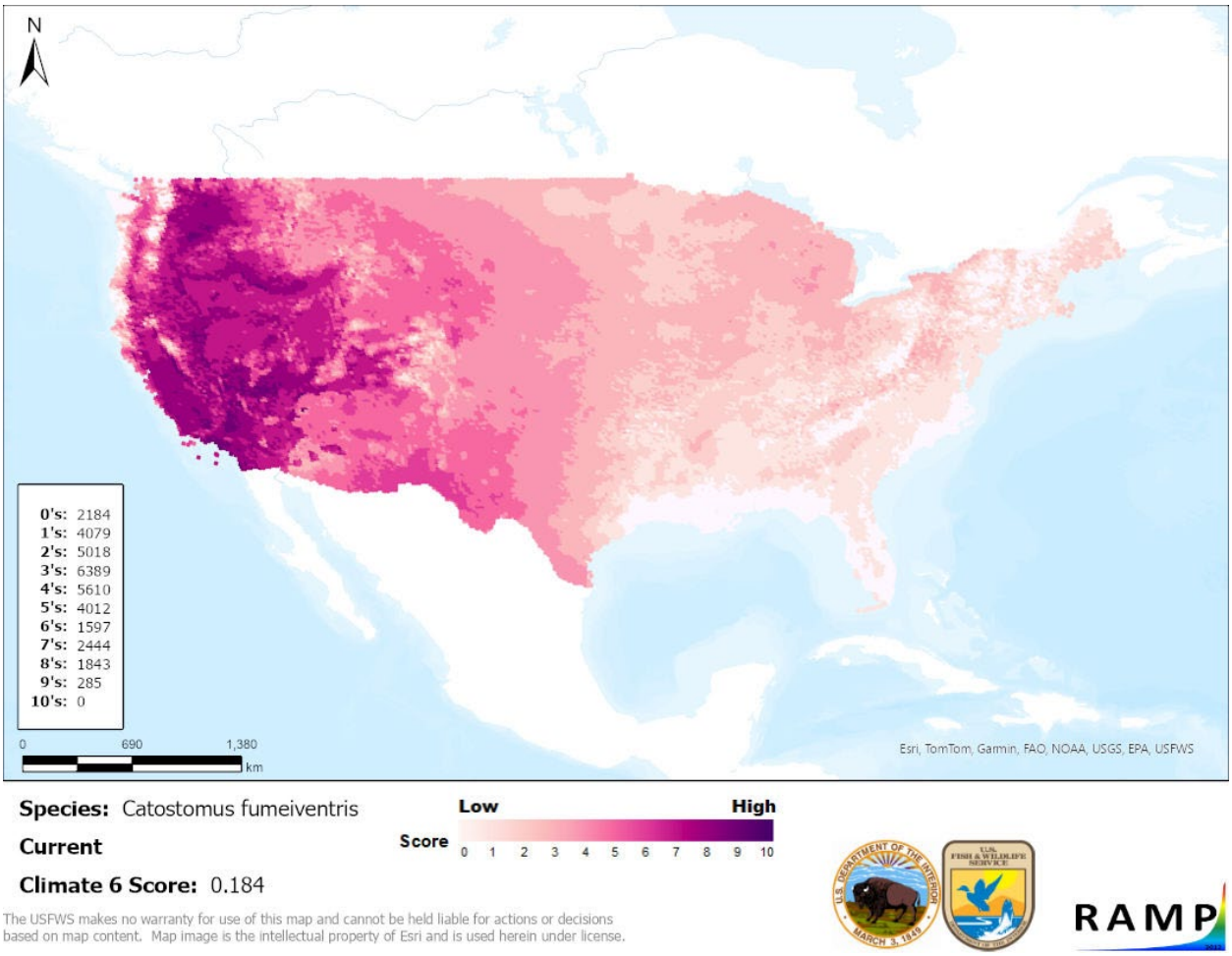

Figure 4. Map of RAMP (Sanders et al. 2023) climate matches for *Catostomus fumeiventris* in the contiguous United States based on source locations reported by GBIF Secretariat (2023). Counts of climate match scores are tabulated on the left. 0/Pale Pink = Lowest match, 10/Dark Purple = Highest match.

8 Certainty of Assessment

The Certainty of Assessment for *Catostomus fumeiventris* is classified as Low. There is sufficient information regarding the species distribution and biology. However, there is a lack of information regarding the history of invasiveness. There is no clear, convincing, reliable evidence of either negative impacts or lack of negative impacts.

9 Risk Assessment

Summary of Risk to the Contiguous United States

Catostomus fumeiventris, Owens Sucker, is a fish native to the Owens Valley in eastern California, United States. *C. fumeiventris* has been introduced and become established outside of its native range along the margins of its native range and in the Santa Clara River basin north of Los Angeles. Most introductions have resulted from the transfer of water out of the Owens River via aqueduct. *C. fumeiventris* has been found to hybridize with *Pantosteus santaanae* in the

Santa Clara River, although the status of that *P. santaanae* population as native or introduced is uncertain. The History of Invasiveness for *Catostomus fumeiventris* is classified as Data Deficient because the species is established outside of its native range but no clear, convincing, reliable evidence of either negative impacts or lack of negative impacts was found. The climate matching analysis for the contiguous United States indicates establishment concern for this species outside its native range. The highest climate matches occurred in California, the Great Basin, and parts of the Pacific Northwest, Colorado Plateau, and Southwest regions. The Certainty of Assessment for this ERSS is classified as Low because of the lack of information regarding the history of invasiveness, including the uncertainty around the implications of hybridization with *P. santaanae*. The Overall Risk Assessment Category for *Catostomus fumeiventris* in the contiguous United States is Uncertain.

Assessment Elements

- **History of Invasiveness (see Section 4): Data Deficient**
- **Establishment Concern (see Section 7): Yes**
- **Certainty of Assessment (see Section 8): Low**
- **Remarks, Important additional information: None**
- **Overall Risk Assessment Category: Uncertain**

10 Literature Cited

Note: The following references were accessed for this ERSS. References cited within quoted text but not accessed are included below in section 11.

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11 Literature Cited in Quoted Material

Note: The following references are cited within quoted text within this ERSS, but were not accessed for its preparation. They are included here to provide the reader with more information.

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Buth DG, Crabtree CB. 1982. Genetic variability and population structure of *Catostomus santaanae* in the Santa Clara Drainage. Copeia 1982:439–444.

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Appendix

Summary of Future Climate Matching Analysis

Future climate projections represent two Shared Socioeconomic Pathways (SSP) developed by the Intergovernmental Panel on Climate Change (IPCC 2021): SSP5, in which emissions triple by the end of the century; and SSP3, in which emissions double by the end of the century. Future climate matches were based on source locations reported by GBIF Secretariat (2023).

Under the future climate scenarios (figure A1), on average, high climate match for *Catostomus fumeiventris* was projected to occur in California and the Great Basin in the contiguous United States. Areas of low climate match were projected to occur in the eastern United States, including the Appalachian Range, Great Lakes, Gulf Coast, Mid-Atlantic, Northeast, Southeast, Southern Atlantic Coast, and Southern Florida regions. These geographic patterns generally held across all future climate scenarios. The Climate 6 scores for the individual future scenario models (figure A2) ranged from a low of 0.098 (model: UKESM1-0-LL, SSP5, 2085) to a high of 0.206 (model: MPI-ESM1-2-HR, SSP5, 2055). All future scenario Climate 6 scores were above the Establishment Concern threshold, indicating that Yes, there is establishment concern for this species under future climate scenarios. The Climate 6 score for the current climate match (0.184, figure 4) falls within the range of scores for future projections. The time step and climate scenario with the most change relative to current conditions was SSP3, 2055 (figure A3). Especially at the 2055 time step, areas within the Southwest saw a large increase in the climate match relative to current conditions. Additionally, areas within the Great Lakes, Northern Pacific Coast, and Northern Plains saw a moderate increase in the climate match relative to current conditions at the 2085 time step. At the 2085 time step, areas within California, the Colorado Plateau, Great Basin, and Western Mountains saw a large decrease in the climate match relative to current conditions. Additionally, areas within the Appalachian Range, Gulf Coast, Mid-Atlantic, Northern Pacific Coast, Southeast, and Southwest saw a moderate decrease in the climate match relative to current conditions under one or more scenarios.

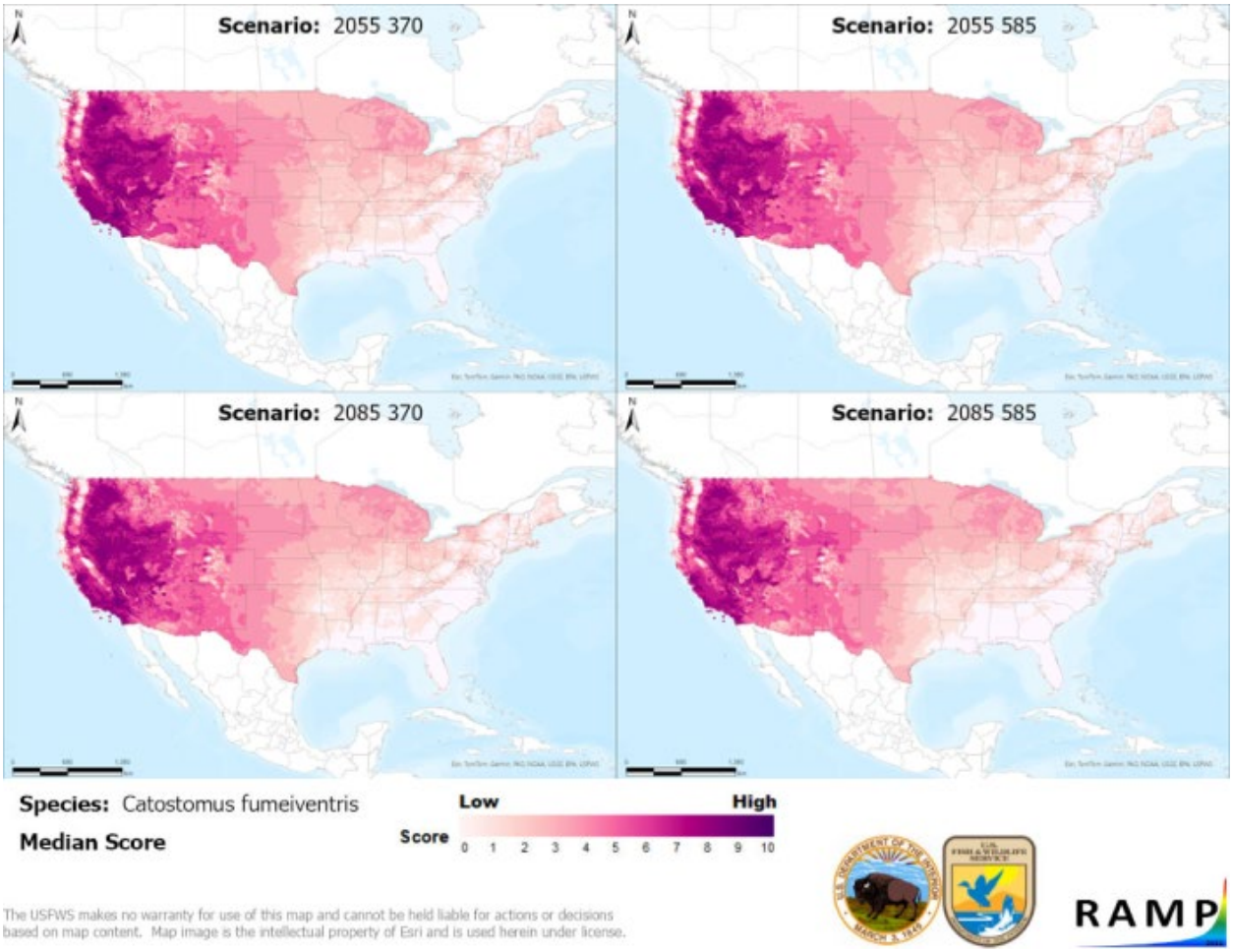

Figure A1. Maps of median RAMP (Sanders et al. 2023) climate matches projected under potential future climate conditions using five global climate models for *Catostomus fumeiventris* in the contiguous United States. Climate matching is based on source locations reported by GBIF Secretariat (2023). Shared Socioeconomic Pathways (SSPs) used (from left to right): SSP3, SSP5 (IPCC 2021). Time steps: 2055 (top row) and 2085 (bottom row). Climate source data from CHELSA (Karger et al. 2017, 2018); global climate models used: GFDL-ESM4, UKESM1-0-LL, MPI-ESM1-2-HR, IPSL-CM6A-LR, and MRI-ESM2-0. 0/Pale Pink = Lowest match, 10/Dark Purple = Highest match.

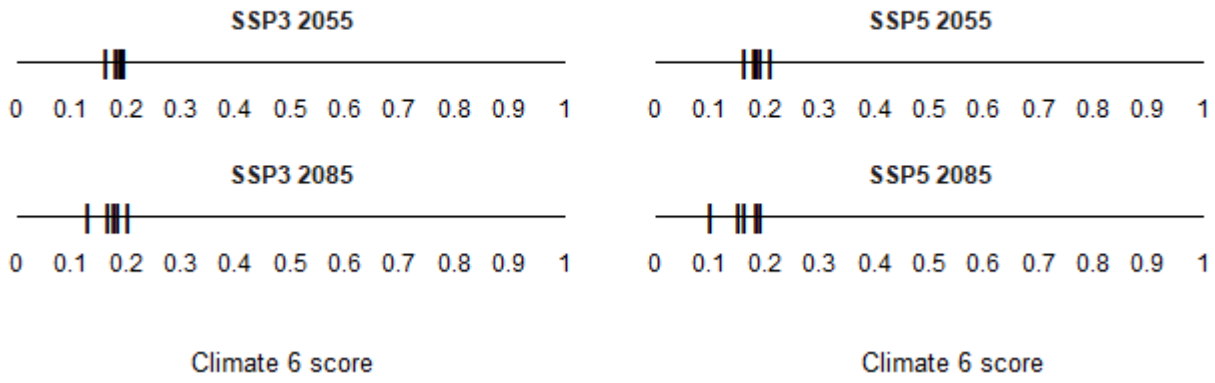

Figure A2. Comparison of projected future Climate 6 scores for *Catostomus fumeiventris* in the contiguous United States for each of five global climate models under four combinations of Shared Socioeconomic Pathway (SSP) and time step. SSPs used (from left to right): SSP3, SSP5 (Karger et al. 2017, 2018; IPCC 2021). Time steps: 2055 (top row) and 2085 (bottom row). Climate source data from CHELSA (Karger et al. 2017, 2018); global climate models used: GFDL-ESM4, UKESM1-0-LL, MPI-ESM1-2-HR, IPSL-CM6A-LR, and MRI-ESM2-0.

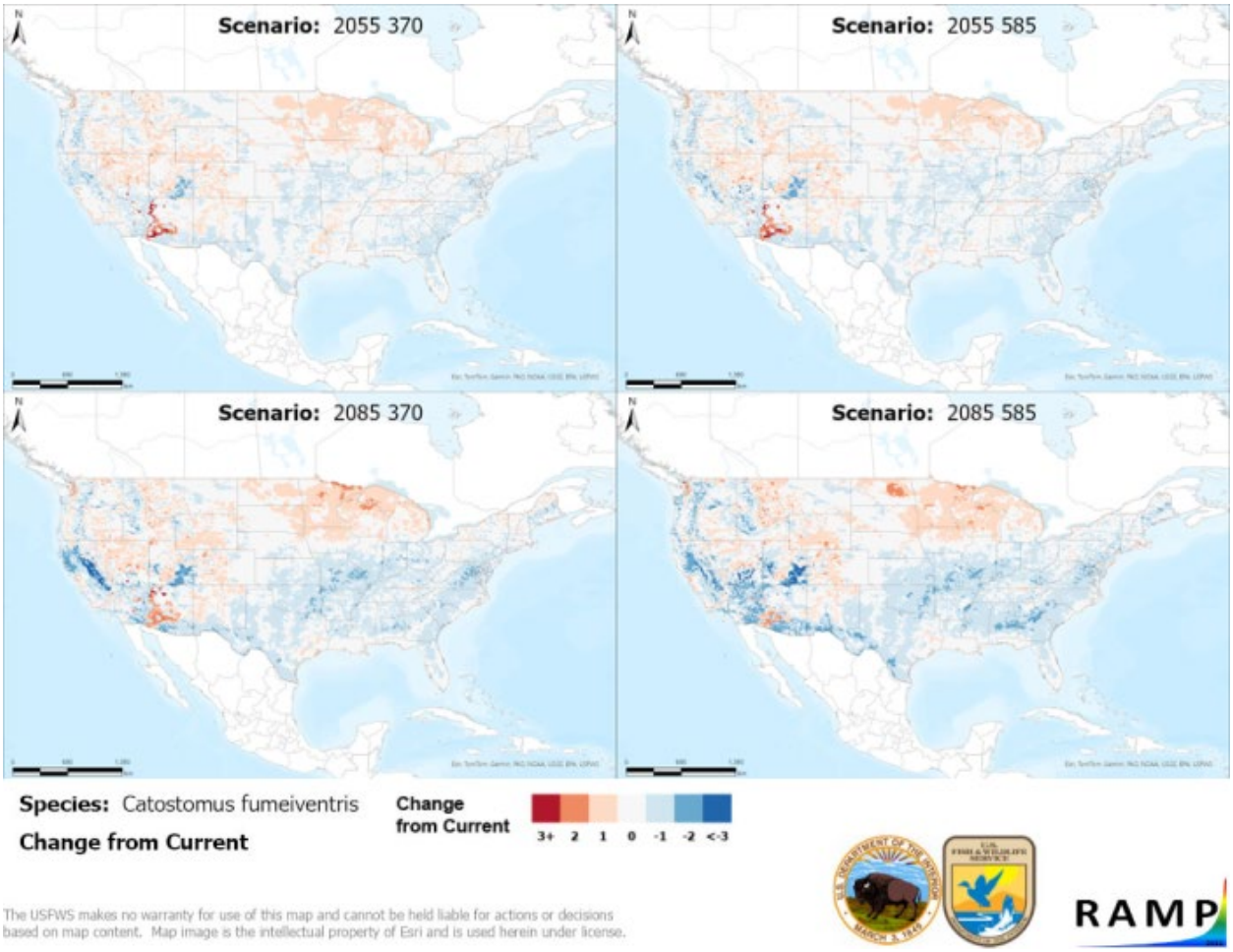

Figure A3. RAMP (Sanders et al. 2023) maps of the contiguous United States showing the difference between the current climate match target point score (figure 4) and the median target point score for future climate scenarios (figure A1) for *Catostomus fumeiventris* based on source locations reported by GBIF Secretariat (2023). Shared Socioeconomic Pathways (SSPs) used (from left to right): SSP3, SSP5 (IPCC 2021). Time steps: 2055 (top row) and 2085 (bottom row). Climate source data from CHELSA (Karger et al. 2017, 2018); global models used: GFDL-ESM4, UKESM1-0-LL, MPI-ESM1-2-HR, IPSL-CM6A-LR, and MRI-ESM2-0. Shades of blue indicate a lower target point score under future scenarios than under current conditions. Shades of red indicate a higher target point score under future scenarios than under current conditions. Darker shades indicate greater change.

Literature Cited

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